Appendix A

Kentucky's NOx SIP Call Regulations

Final Regulations

401 KAR 51:150. NOx requirements for stationary internal combustion engines. (Effective February 3, 2006)

401 KAR 51:160. NOx requirements for large utility and industrial boilers. (Effective February 3, 2006)

Adoption of 401 KAR 51:150. NOx requirements for stationary internal combustion engines.

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
Department for Environmental Protection
Division for Air Quality

401 KAR 51:150. NOx requirements for stationary internal combustion engines.

RELATES TO: KRS 224.10-100, 224.20-100, 224.20-110, 224.20-120, 40 C.F.R. 51.121, 51.122, 40 C.F.R. 78, 97, 42 U.S.C. 7401-7671q

STATUTORY AUTHORITY: KRS 224.10-100(5), 224.20-110, 42 U.S.C. 7410

NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100(5) requires the Environmental and Public Protection Cabinet to promulgate administrative regulations for the prevention, abatement, and control of air pollution. 42 U.S.C. 7410 requires each state to promulgate a plan which provides for implementation, maintenance, and enforcement of the national primary and secondary ambient air quality standard in each air quality control region within the state. Pursuant to the federal NOx SIP Call, this administrative regulation provides for the regional control of nitrogen oxides (NOx) emissions by establishing requirements for large stationary internal combustion engines. This administrative regulation is not more stringent than the federal mandate.

Section 1. Definitions. (1) "Affected engine" means any stationary internal combustion engine or turbine that is:

(a) A Large NOx SIP Call Engine; or

(b) Another stationary internal combustion engine or turbine that is subject to NOx control under a compliance plan pursuant to this administrative regulation.

(2) "Facility seasonal NOx 2007 tonnage reduction" means the total of the engine seasonal NOx 2007 tonnage reductions attributable to all large NOx SIP Call engines of an owner or operator.

(3) "Large NOx SIP Call Engine" means a stationary internal combustion engine identified and designated in the NOx SIP Call engine inventory as emitting more than one (1) ton of NOx per average ozone season day in 1997.

(4) "NOx potential to emit" means the maximum capacity of an engine to emit NOx under its physical and operational design or applicable permit condition for a given period of time. Any physical limitation on the capacity of a source's potential to emit an air pollutant, including air pollution control equipment or combustion modification, shall be treated as part of its design if the limitation is enforceable by the cabinet.

(5) "NOx SIP Call baseline period" or "baseline period" means the period beginning May 1, 1997, and ending September 30, 1997, inclusive.

(6) "NOx SIP Call baseline period utilization" means the amount of work performed by a NOx SIP Call engine during the baseline period in brake horsepower-hours (bhp-hr).

(7) "NOx SIP Call engine inventory" means the NOx emission inventory, compiled by the U.S. EPA, that includes:

(a) Technical amendments pursuant to 65 Fed. Reg. 11222, March 2, 2000; and

(b) The adjustment of the 2007 budget NOx control efficiency to eighty-two (82) percent for large gas-fired engines pursuant to 69 Fed. Reg. 21603, April 21, 2004.

(8) "Past NOx emission rate" means the emission rate of an affected engine in grams per brake horsepower-hour (g/bhp-hr), as determined by performance testing consistent with the requirements of 40 C.F.R. Part 60, Appendix A. If the performance test data are not available, the rate means:

(a) The uncontrolled emission rate for Large NOx SIP Call Engines; or

(b) A rate determined by the cabinet on a case-by-case basis, using appropriate emission factors or data from the NOx SIP Call engine inventory.

(9) "Projected 2007 NOx tonnage reduction" means the projected NOx reduction in tons during the 2007 control period, calculated as the difference between the 2007 base emissions and the 2007

budget emissions. The Projected 2007 NOx tonnage reduction may be corrected through an approved SIP revision.

(10) "Projected 2007 seasonal base NOx emissions" or "2007 base emissions" means the projected uncontrolled NOx emissions, in tons, for the 2007 control period as published in the NOx SIP Call Inventory. The 2007 base emissions may be recalculated through an approved SIP revision.

(11) "Projected 2007 seasonal budget NOx emissions" or "2007 budget emissions" means the projected controlled NOx emissions in tons, for the 2007 control period as published in the NOx SIP Call Inventory. The 2007 budget emissions may be recalculated through an approved SIP revision.

(12) "Projected 2007 Ozone Season utilization" or "2007 utilization" means the projected amount of work during the 2007 control period performed by a NOx SIP Call engine, calculated as the 1997 baseline utilization multiplied by the growth factor assigned to that engine in the NOx SIP Call Inventory.

(13) "Projected NOx emission rate" means the projected emission rate in grams per brake horsepower-hour after installation of controls on an affected engine or the Past NOx emission rate if controls are not installed on an affected engine.

(14) "Projected operating hours" means the projected actual number of hours of operation per ozone season for an affected engine.

(15) "Projected brake horsepower hours" means the projected actual number of brake horsepower hours per ozone season for an affected engine.

(16) "Stationary internal combustion engine" means any internal combustion engine of the reciprocating type that is either attached to a foundation at a facility or is designed to be capable of being carried or moved from one location to another and remains at a single site at a building, structure, facility, or installation for more than twelve (12) consecutive months. Any engine or engines that replace an engine at a site that is intended to perform the same or similar function as the engine replaced shall be included in calculating the consecutive time period.

Section 2. Applicability. This administrative regulation shall apply to the owner or operator of any Large NOx SIP Call Engine.

Section 3. Standard for Large NOx SIP Call Engines. On and after May 1, 2007, an owner or operator of an affected engine shall not operate the engine during a control period unless:

(1) The NOx emission rate for a Large NOx SIP Call Engine is reduced from the Past NOx emission rate by at least eighty-two (82) percent; or

(2) The owner or operator complies with the requirements in Section 4 of this administrative regulation.

Section 4. Compliance Plan. On and after May 1, 2007, an owner or operator shall not operate a Large NOx SIP Call Engine during the control period unless the owner or operator complies with the requirements of a compliance plan or reduces NOx emissions from that engine in accordance with Section 3(1) of this administrative regulation.

(1) The compliance plan shall:

(a) Be approved by the cabinet in accordance with Sections 4 through 8 of this administrative regulation;

(b) Include all affected engines at an individual facility, several facilities, or at all facilities located in Kentucky that are under the control of the same owner or operator;

(c) Be submitted to the cabinet by May 1, 2006;

(d) Include credit for decreases in NOx emissions from Large NOx SIP Call Engines in Kentucky due to NOx control equipment. The owner or operator shall also include credit for decreases in NOx emissions from other affected engines in Kentucky due to NOx control equipment that is not reflected in the 2007 Ozone Season Base NOx Emissions in the NOx SIP Call Engine Inventory;

(e) Include credit for decreases in NOx emissions due to reductions from shifting historic load capacity from an uncontrolled engine to a controlled engine, electric motor, or turbine. The owner or

operator shall demonstrate to the satisfaction of the cabinet that a quantifiable net reduction in NOx emissions has occurred or will occur due to a direct shift of ozone season load capacity from an uncontrolled engine to a controlled engine, electric motor, or turbine; and

(f) Provide the following information for each affected engine:

1. A list of affected engines subject to the plan that includes:

a. Engine manufacturer;

b. Engine model number;

c. Facility location address; and

d. Facility identification number.

2. The projected ozone season hours of operation and supporting documentation;

3. A description of the NOx emissions control installed, or to be installed, and documentation to support the Projected NOx Emission Rates;

4. The Past and Projected NOx Emission Rates in grams per brake horsepower-hour;

5. A numerical demonstration that the emission reductions obtained from all affected engines included in the compliance plan will be equivalent to or greater than the owner or operator's Facility Seasonal NOx 2007 Tonnage Reduction, based on the difference between the Past NOx Emission Rate and the Projected NOx Emission Rate, multiplied by the Projected brake horsepower hours for each affected engine, and considering credit according to subsection (1)(d) and (e) of this section; and

6. Provisions for monitoring, reporting, and recordkeeping.

(2) The Projected NOx Emission Rate in grams per brake horsepower-hour for each affected engine shall be included in a federally-enforceable permit.

Section 5. Compliance Demonstration. (1) Pursuant to the compliance plan required in Section 4, NOx emission reductions shall be calculated according to the following criteria:

(a) For an affected engine to which a control device is added, a combustion modification is made, or for reductions achieved pursuant to Section 4(1)(e) of this administrative regulation after September 30, 1997, the NOx emission reductions shall equal the difference between the Past NOx emission rate and the Projected NOx emission rate, multiplied by the Projected brake horsepower hours during the control period.

(b) For an affected engine that is removed from service after September 30, 1997, and the facility's operating capacity, in brake horsepower-hours, equivalent to the removed affected engine's projected utilization is replaced, in part or in total, during a control period:

1. By a NOx emitting device installed after September 30, 1997, the NOx emission reductions shall be the difference, in tons, between the removed affected engine's projected 2007 base emissions and the replacement device's seasonal potential to emit for the operating capacity, in brake horsepower-hours, equivalent to the portion of the removed affected engine's projected utilization that the device will replace, not to exceed 100 percent;

2. By a device that does not emit NOx installed after September 30, 1997, the NOx emission reductions shall be the removed affected engine's projected 2007 base emissions, multiplied by the percentage projected from utilization of the replacement device, not to exceed 100 percent; or

3. By a device that does not emit NOx, and a NOx emitting device is installed at the removed affected engine's facility after the date that the device that does not emit NOx was installed, the NOx emission reductions shall be the difference, in tons, between the removed affected engine's projected 2007 base emissions, and the NOx emitting device's seasonal potential to emit for its operating capacity, in tons, equivalent to the portion of the removed affected engine's projected utilization that it will replace, not to exceed 100 percent.

(2) The following shall not be considered NOx emission reductions for compliance with this administrative regulation:

(a) A restriction on an affected engine's hours of operation during a control period, including a prohibition from operating;

(b) A NOx emission limitation enforceable by the cabinet placed upon an affected engine to which no control device was added, combustion modification made or for reductions achieved pursuant to Section 4(1)(e) after September 30, 1997;

(c) The removal of an affected engine from service if that affected engine is placed into service at another location within Kentucky; or

(d) NOx emission reductions achieved at a facility that is not owned or operated by the person responsible for demonstrating compliance with this administrative regulation.

(3) Demonstrability and enforceability of NOx emission reductions. NOx emission reductions, calculated in accordance with subsection (1)(a) or (b) of this section, shall be demonstrable and enforceable if:

(a) An hourly NOx emission limitation unit, grams per brake horsepower-hours, is included in a permit enforceable by the cabinet for the affected engine or replacement device that is to be operated during a control period;

(b) The hourly NOx emission limitation is equal to the hourly emission rate used to calculate the NOx potential to emit for the affected engine or replacement device in the compliance plan; and

(c) A performance test conducted in accordance with Section 6 of this administrative regulation determines that the affected engine or the replacement device is capable of complying with the hourly NOx emission limitation.

(4) NOx emission reductions achieved to comply with this administrative regulation shall not be considered creditable for compliance with any other applicable requirement and shall not be considered a contemporaneous emission decrease for the purposes of netting or offsets.

Section 6. Monitoring Requirements. An owner or operator of an affected engine shall:

(1) Complete an initial performance test according to the requirements codified in Appendix A to 40 C.F.R. Part 60, following the installation of emission controls required to achieve the emissions limit in Section 3(1) of this administrative regulation.

(2) Perform periodic monitoring to yield reliable data from the relevant time period that is representative of a source's compliance with the emissions limit in Section 3(1) of this administrative regulation. Periodic monitoring shall include either:

(a) Performance tests consistent with the requirements of Appendix A to 40 C.F.R. Part 60, or portable monitors using ASTM D6522-00;

(b) A parametric monitoring program that specifies operating parameters and their ranges that will provide that each affected engine's emissions are consistent with the provisions of Section 3 of this administrative regulation;

(c) A predictive emissions measurement system that relies on automated data collection from instruments; or

(d) A continuous emission monitoring system that complies with 40 C.F.R. Part 60 or Part 75.

Section 7. Recordkeeping Requirements. An owner or operator subject to this administrative regulation shall:

(1) Maintain all records necessary to demonstrate compliance with the provisions of this administrative regulation for a period of two (2) calendar years where the affected engine is located, and provide the records, upon request, to the cabinet and the U.S. EPA;

(2) Maintain the following records for each affected engine:

(a) Identification and location of each affected engine;

(b) Calendar date of record;

(c) Number of hours the affected engine is operated during each control period compared to the Projected Operating Hours;

(d) Type and quantity of fuel used; and

(e) Results of all compliance tests.

Section 8. Reporting Requirements. An owner or operator subject to the provisions of this administrative regulation shall submit the required reports, compliance plans, and compliance test results to:

(1) Manager, Permit Review Branch, Kentucky Division for Air Quality, 803 Schenkel Lane, Frankfort, Kentucky 40601, (502) 573-3382; and

(2) The appropriate Regional Office of the Division for Air Quality as follows:

(a) Ashland Regional Office, 1550 Wolohan Drive, Suite 1, Ashland, Kentucky 41102, (606) 929-5285;

(b) Bowling Green Regional Office, 1508 Westen Avenue, Bowling Green, Kentucky 42104, (270) 746-7475;

(c) Florence Regional Office, 8020 Veterans Memorial Drive, Suite 110, Florence, Kentucky 41042, (859) 525-4923;

(d) Hazard Regional Office, 233 Birch Street, Suite 2, Hazard, Kentucky 41701, (606) 435-6022;

(e) London Regional Office, 875 South Main Street, London, Kentucky 40741, (606) 878-0157;

(f) Owensboro Regional Office, 3032 Alvey Park Drive, W., Suite 700, Owensboro, Kentucky 42303, (270) 687-7304; or

(g) Paducah Regional Office, 130 Eagle Nest Drive, Paducah, Kentucky 42003, (270) 898-8468.

Section 9. Incorporation by Reference. (1) "ASTM D6522-00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and process Heaters Using Portable Analyzers, Book of ASTM Standards, February 10, 2000 and April 2000," is incorporated by reference.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Division for Air Quality, 803 Schenkel Lane, Frankfort, Kentucky 40601, (502) 573-3382, Monday through Friday, 8 a.m. to 4:30 p.m.

(3) Copies are available for sale from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania, 19428-2959, telephone (610) 832-9585, facsimile (610) 832-9555, and the Internet http://www.astm.org/.

Effective: February 3, 2006